



BIO1221 Introduction to genetics

[25h+15h exercises] 3 credits

This course is taught in the 2nd semester

Teacher(s): André Lejeune
Language: French
Level: First cycle

Aims

- To situate the discipline in the global context of sciences and society;
- To know and understand the mechanisms ruling the transmission of genes from one generation to the next and the genetic variations that occur in populations;
- To solve exercises relevant to the themes mentioned above.

Main themes

The introduction of the course aims to situate genetics and its importance in the global context of sciences and society. It is completed at the end of the course by a debate on a theme in relation to the course, chosen by the students and prepared by a portfolio of reading material.

The study of genetics is envisioned at two levels of organisation of the living world. At the level of individuals, general laws of transmission of genes, their application to certain particular cases and exceptions will be exposed. Connections with certain aspects of metabolism and a brief overview of genomic notions will be presented. At the level of populations, we study variations of genetic characteristics and connect them with certain aspects of evolution.

Content and teaching methods

Content

1. Genetics and the organism
2. Classical genetics. 2.1 Patterns of inheritance (laws of Mendel). 2.2 Chromosomal basis of heredity. 2.3 Extensions of Mendelian heredity (incomplete dominance, codominance, lethal alleles, multiple alleles, gene interactions). 2.4 Gene linkage and genetic mapping
3. Overview of genomics
4. Population genetics. 3.1 Hardy-Weinberg equilibrium. 3.2 Variations in populations.

Method

Theoretical classes and exercises. Debate on a selected topic linking genetics and society.

Other information (prerequisite, evaluation (assessment methods), course materials recommended readings, ...)

Pre-requisite : cell biology class. Thorough knowledge of the mother language, rigor, ability to observe, analyse, synthesise, curiosity, imagination, motivation.

Evaluation : written examination on theory and exercises

Written support : books, overhead transparencies, portfolio of reading material.

Other credits in programs

BIOL12BA	Deuxième année de bachelier en sciences biologiques	(3 credits)	Mandatory
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